

Business Analytics

The Business Analytics (BUAN) major, housed in the Department of Decision and Technology Analytics (DATA), prepares students with cutting-edge knowledge and skill sets that will enable them to be competitive in the rapidly growing field of business analytics, by focusing on using technological tools to extract, integrate, visualize, analyze, and interpret data to support business decision making. This program will provide students with a strong training in applied data and analytics skills which allow them to turn raw data into value for a business.

These skills can be applied in a broad range of functional areas and industries including management, marketing, operations, financial services, healthcare, and more. Career opportunities for BUAN majors include: business analyst, data analyst, research analyst, analytics consultants, risk analysts, and more.

The Business Analytics major requires 4 courses and 2 electives beyond the core requirements of the College of Business.

4 Required Courses

BIS 324	Business Data Management	3
BUAN 348	Predictive Analytics in Business	3
BUAN 352	Business Analytics and Modelling	3
BUAN 357	Artificial Intelligence for Business	3

2 Elective Courses from the Following List:

BIS 335	Application Development for Business	3
BUAN 346	Python Applications for Business	3
SCM 345	Analytical Approaches to Supply Chain Management	3
ACCT 330	Accounting Data and Analytics	3
ECO 301	Econometric Software	3
ECO 357	Econometrics	3
ECO 367	Applied Microeconomics	3
MKT/ECO 325	Consumer Insights through Data Analysis	3
MKT 326	Marketing Analytics in a Digital Space	3
FIN 377	Advanced Topics--Investments (Data Science for Finance)	3

Course descriptions for the College of Business graduate courses can be found under Business Graduate courses (<http://catalog.lehigh.edu/courses/programsandcurricula/businessanddeconomics/businessanddeconomicsgraduatecourses/>).

Courses

BUAN 346 Python Applications for Business 3 Credits

This class is designed to introduce students to the processes involved in acquiring, cleaning, arranging, analyzing, and visualizing business data using the Python programming language. It will be fast-paced, but assumes only a basic familiarity with coding, and requires no specific expertise in Python to start. Students cannot receive credit for both BUAN 346 and BIS 446.

Prerequisites: BIS 111

BUAN 348 Predictive Analytics in Business 3 Credits

The course covers theories and practices in predictive analytics in business. Students will have hands-on experience on analyzing business data for business intelligence and improved business decision making. Includes: key theories, concepts, and models of predictive analytics; and data mining tools to formulate and solve business problems. The course uses data analytics software and real data. Topics include prediction, forecasting, classification, clustering, data-visualization and data reduction techniques. Not available to students who have credit for BIS 448 or BIS 456.

Prerequisites: BIS 111 and (ECO 045 or MATH 012 or MATH 231)

BUAN 352 Business Analytics and Modelling 3 Credits

This course covers advanced analytic methods for understanding and solving business problems. The emphasis is on understanding and applying a wide range of modern techniques to specific decision-making situations. Using the programming language R, the course covers advanced topics such as machine learning, text mining, and social network analysis. Upon completion, students will have valuable practical analytical skills to handle large datasets and make business decisions. Credits will not be given for both BUAN 352 and BIS 452.

Prerequisites: BIS 111 and (ECO 045 or MATH 012 or MATH 231)

BUAN 357 Artificial Intelligence for Business 3 Credits

This course covers fundamental concepts of artificial intelligence (AI) and how it is applied to solve business problems, to increase business value, transform businesses and to gain competitive advantage. A brief technical overview will be covered. Common machine learning (ML) algorithms will be covered and students will have hands-on experience with AI tools/frameworks. Example use cases of these ML algorithms in various business functional areas will be examined. Finally, ethical challenges in the AI context will be explored.

Prerequisites: BIS 111 and (ECO 045 or MATH 012 or MATH 231) and (BIS 044 or BIS 335 or CSE 002 or CSE 012 or CSE 007 or CSE 003)

BUAN 446 Python Applications for Business 3 Credits

This class is designed to introduce students to the processes involved in acquiring, cleaning, arranging, analyzing, and visualizing business data using the Python programming language. It will be fast-paced, but assumes only a basic familiarity with coding, and requires no specific expertise in Python to start. Students cannot receive credit for both BUAN 346 and BUAN 446.

BUAN 448 Predictive Analytics in Business 3 Credits

The course covers theories and practices in predictive analytics in business. Students will have hands-on experience on analyzing business data for business intelligence and improved business decision making. Includes: key theories, concepts, and models of predictive analytics; and data mining tools to formulate and solve business problems. The course uses data analytics software and real data. Topics include prediction, forecasting, classification, clustering, data-visualization and data reduction techniques. Not available to students who have credit for BUAN 348 or BIS 456.

BUAN 452 Business Analytics and Modelling 3 Credits

This course covers advanced analytic methods for understanding and solving business problems. The emphasis is on understanding and applying a wide range of modern techniques to specific decision-making situations. Using the programming language R, the course covers advanced topics such as machine learning, text mining, and social network analysis. Upon completion, students will have valuable practical analytical skills to handle large datasets and make business decisions. Credits will not be given for both BUAN 352 and BUAN 452.

Prerequisites: ECO 045 or BUEC

BUAN 457 Artificial Intelligence for Business 3 Credits

This course covers fundamental concepts of artificial intelligence (AI) and how it is applied to solve business problems, to increase business value, transform businesses and to gain competitive advantage. A brief technical overview will be covered. Common machine learning (ML) algorithms will be covered and students will have hands-on experience with AI tools/frameworks. Example use cases of these ML algorithms in various business functional areas will be examined. Finally, ethical challenges in the AI context will be explored.